

REMARKS

Claims 1-26 and 29-38 are pending in this application. By this Amendment, claim 1 is amended and claims 27 and 28 are cancelled. Claim 1 is amended to (1) positively recite the presence of a water-insoluble finish on the aramide fibers, (2) specify the treatment methods for the short-cut, random fiber or flat textile material aramide fibers and (3) specify the preferred group of hydrophilic fluids. The amendments to claim 1 are made in an effort to distinguish the claims over the teachings of the art cited in the Office Action as discussed more fully below.

No new matter is added by this Amendment. Support for the amendment to claim 1 reciting that the aramide fibers are provided with a water-insoluble finish is found in the original specification at, for example, paragraph [0002]. Support for the amendment to claim 1 reciting the treatment methods for the different aramide fiber types is found in the original specification at, for example, paragraphs [0024] to [0026]. Support for the amendment to claim 1 reciting the group of preferred hydrophilic fluids is found in the original specification at, for example, original claims 5, 9, 14 and 20.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Kumar in the May 21, 2003 telephonic interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.¹

I. Rejection Under 35 U.S.C. §102(b)

Claims 1-30 and 38 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 4,759,770 (Cates). This rejection is respectfully traversed.

¹ In the Interview Summary, it was indicated that Ghorashi was not discussed during the interview. Applicant respectfully disagrees. Although the discussion was brief, Applicant indicated that (1) similar to Cates, the teachings of Ghorashi would not have inherently taught or suggested the procedure of claim 1 and (2) Ghorashi was also overcome by amending claim 1 to include claims 27 and 28, which dependent claims were not rejected relying upon Ghorashi.

Cates describes a process for simultaneously dyeing and improving the flame-resistant properties of poly(m-phenyleneisophthalamide) fibers using a swelling agent to introduce a dye and fire retardant into the fiber. An aqueous dimethylsulfoxide solution is preferably used as the swelling agent. See the Abstract.

Contrary to the presently claimed invention, Cates nowhere teaches or suggests that the polyamide fibers described therein are provided with a water-insoluble finish. Cates teaches nothing to one of ordinary skill in the art regarding procedures for removing water-insoluble finishes from such fibers, and thus Cates cannot be found to anticipate the procedure of claim 1.

It is not clear from the Office Action what theory the Patent Office is relying upon in alleging that Cates anticipates the procedure for removing a water-insoluble finish from aramide fibers as recited in claim 1 of the present application. If the theory is based upon inherency, i.e., that by Cates teaching a process in which a polyamide fiber is treated with a solution containing dimethylsulfoxide, a water-insoluble finish on the polyamide fibers would have inherently been removed, Applicant strenuously disagrees.

For a rejection based upon inherency to be proper, it must be established that each and every limitation recited in a claim is necessarily present in a prior art reference. Such is not the case here. Cates nowhere teaches or suggests that the polyamide fibers include a water-insoluble finish prior to being exposed to the swelling agent that introduces the dye and fire retardant into the fiber. As such, it cannot be concluded that Cates would necessarily achieve removal of a water-insoluble finish from a polyamide fiber since Cates does not even teach or suggest that the polyamide fibers have a water-insoluble finish thereon prior to exposure to the swelling agent.

Further, Cates discloses at col. 6, lines 20-28 that water-repellants, which are examples of water-insoluble finishes (see the present specification at paragraph [0002],

second sentence), may be added to the fibers together with the swelling agent, fire retardant and dye, or as a post-treatment finish after dyeing, heating, washing and drying of the fabric. Such emphasizes that the polyamide fibers utilized in Cates to be provided with a dye and a flame retardant are not provided with a water-insoluble finish prior to being dyed. Otherwise, the addition of water-repellants as described in Cates would be completely unnecessary.

Cates thus fails to teach or suggest a procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish as recited in claim 1.

If the theory the Patent Office relies upon in rejecting the claims relying upon Cates is instead that Cates describes that the treated fibers may be washed following the treatment in order to remove any residual dye, organic swelling agent or flame retardant, such washing step in Cates also fails to anticipate the invention of claim 1. As described in Cates, this step of washing with water is merely to remove any residual swelling agent remaining on the fiber as well as minor amounts of unfixed dye and/or fire retardant, but does not remove the fixed dye and fire retardant added to the fiber through the use of the swelling agent. See col. 6, lines 28-35. This washing step in Cates therefore does not remove a water-insoluble finish from aramide fibers provided with a water-insoluble finish as required in claim 1 of the present application.

Finally, Cates completely fails to teach or suggest that the treatment for removing a water-insoluble finish from short-cut or random aramide fibers comprises either treating in the wash cycle of a washing machine or stirring in the presence of at least one hydrophilic fluid, while removing a water-insoluble finish from an aramide flat textile material comprises one of treating in the wash cycle of a washing machine, stirring or treating with a water vapor stream in the presence of at least one hydrophilic fluid as recited in amended claim 1.

For at least the foregoing reasons, Applicant respectfully submits that Cates clearly fails to anticipate the invention of claim 1. Reconsideration and withdrawal of this rejection are thus respectfully requested.

II. Rejection Under 35 U.S.C. §102(b)/35 U.S.C. §103(a)

Claims 1-8 and 26-38 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over, U.S. Patent No. 5,855,623 (English). This rejection is respectfully traversed.

English discloses a process for treating polyester, polyamide, acrylic, aramide or cellulose substrates to improve the uniformity of polymerization on the substrate, to provide uniform dyeability and to provide even substrate treatment to improve the hydrophilic properties of the substrates. See the Abstract, col. 3, lines 6-67 and col. 4, lines 18-19.

At col. 13, line 64 to col. 14, line 22, English discloses a process of treating polyamide, acrylic, aramide and cellulose substrates with reference to polyamide fibers for convenience and states that treatment of each polymer substrate includes the basic steps:

- (1) scouring the fibers with an aqueous alkaline solution to improve the uniform polymerization of the monomer on the substrate fibers by removing knitting oils and waxes;
- (2) contacting the scoured fibers free from knitting oils and waxes with an aqueous solution having a pH below seven but above where acid degradation of the polymer fiber occurs and a temperature between about 75°C and about 100°C and containing at least one unsaturated monomer to effect single molecule addition of a monomer pendent to the polymer fiber; and
- (3) polymerizing the monomer on the polymer surface using a polymerization initiator to allow graft polymerization of the monomer on the fiber surface to modify the surface characteristics of the polymer fibers.

In step (1) in English, scouring in the presence of an aqueous alkaline solution is required in order to remove knitting oils and waxes from the fibers. See column 14, lines 3-4,

lines 52-53 and lines 63-64, as well as column 20, lines 1-3. However, nowhere does English teach or suggest that instead of harsh scouring to remove the knitting oils and waxes, more gentle procedures such as stirring, treating in the wash cycle of a washing machine or treating with a water vapor stream may be used as in the procedure of claim 1 of the present application. Nothing in this step of English would have led one of ordinary skill in the art to the presently claimed treating procedures.

Furthermore, Applicant respectfully disagrees with the assertion of the Examiner in the Interview Summary form that a treatment in the wash cycle of a washing machine would have been obvious in view of the scouring treatment of English. Nothing in the description of English would have suggested the use of treating in the wash cycle of a washing machine, and nothing is set forth on the record as to how one of ordinary skill in the art would have been led to have modified the scouring treatment to a treatment in the wash cycle of a washing machine.

Still further, even if the present treatment in the wash cycle of a washing machine were somehow deemed to have been obvious from the scouring of English, Applicant submits that English still would not have achieved the invention of claim 1. English requires that the scouring be conducted with an aqueous alkaline solution in order to be effective, and does not teach or suggest scouring with a hydrophilic fluid selected from the group consisting of water, dimethyl sulfoxide, a solution of dimethyl sulfoxide in water, an aliphatic cyclic ester with 2 to 4 alkylene groups or an aliphatic alcohol with 1 to 5 carbon atoms. English requires the presence of the alkaline material in order for the solution to have a certain pH in order to be able to remove knitting oils and waxes, and thus nothing in English would have led one to have omitted the alkaline material and used just water in the scouring procedure of English.

In the Office Action, the top of page 6 of the Office Action cited English as also describing the use of surfactants. However, these surfactants are not used in the scouring procedure. English describes such surfactants at col. 7, lines 4-38 as possibly being included to form an emulsion with the monomer utilized in step (2) of English. English does not teach or suggest the use of such surfactants in the scouring step (1) therein. Further, this step (2) in English cannot be found to have taught or suggested the procedure of present claim 1 because the fibers in step (2) in English have already been subjected to scouring and thus would not have a water-insoluble finish thereon. That is, exposure of the fibers in English to the monomer emulsion in order to coat the monomer upon the surface of the polymer fiber completely fails to teach or suggest a procedure for removing a water-insoluble finish from an aramide fiber having a water-insoluble finish thereon. The step (2) in English thus describes the addition of a monomer layer on the fiber surface and cannot be found to have taught or suggested the procedure of claim 1 of the present application.

For at least the foregoing reasons, Applicant respectfully submits that nothing in English would have taught or suggested the invention of present claim 1 to one of ordinary skill in the art. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Rejection Under 35 U.S.C. §103(a)

Claims 1, 14-25 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,096,459 (Ghorashi). This rejection is respectfully traversed.

Ghorashi teaches a method of dyeing a tow of poly(m-phenylene isophthalamide) fibers, which have been previously dried, comprising patting onto the surface of the fibers an aqueous solution including a carrier and a water-soluble dye, and thereafter heating the fibers with steam. See the Abstract and col. 2, line 49 to col. 3, line 5 of Ghorashi.

Ghorashi nowhere teaches or suggests any procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish. Ghorashi thus would not have led one of ordinary skill in the art to the present invention.

In the Office Action, Examples 1 and 2 of Ghorashi were referred to as illustrating the use of alcohol and acetophenone, and it was alleged that the use of these materials in Ghorashi "would inherently remove the water-insoluble coating of the aramide fibers in [sic-the] process of dyeing the fiber with the water-soluble dye." Applicant here again strenuously disagrees.

As discussed above with respect to Cates, for a rejection based upon inherency to be proper, it must be established that each and every aspect of a claim is inherently achieved by the teachings of a reference. Here, such cannot be done because Ghorashi nowhere teaches or suggests that the fibers to be dyed have a water-insoluble finish thereon as required in the present invention, and thus it cannot be concluded that one of ordinary skill in the art following the teachings of Ghorashi would have inherently achieved the process of claim 1, i.e., that the dyed fibers derived from Ghorashi necessarily had a water-insoluble finish thereon removed by the dyeing procedure. As such, the rejection is improper and must be withdrawn.

Further, it must be emphasized that Ghorashi teaches nothing more to one of ordinary skill in the art than a procedure for dyeing an aromatic polyamide fiber, and thus would not have led one of ordinary skill in the art to the procedure of the present invention in which a process for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish is specifically provided.

Finally, it must be emphasized that Ghorashi also fails to teach or suggest removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish by treating with at least one hydrophilic fluid in which the treating of short-cut or random fibers

comprises either treating in a wash cycle of a washing machine or stirring, and treating of a flat textile material comprises treating in the wash cycle of a washing machine, stirring, or treating with a water vapor stream, as required in claim 1. This was acknowledged by the Patent Office in the fact that claims 27 and 28 reciting these treatment procedures had not been rejected relying upon Ghorashi.

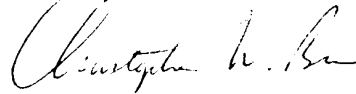
For at least the foregoing reasons, Applicant respectfully submits that nothing in Ghorashi would have led one of ordinary skill in the art to the presently claimed invention. Reconsideration and withdrawal of this rejection are thus respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-26 and 29-38 are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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